Claims

[c1] A patient positioning system for medical applications, said system comprising:
a patient positioning surface for supporting a patient;
a lift subsystem for adjusting elevation of said patient positioning surface;
a longitudinal subsystem for moving said patient positioning surface in a longitudinal direction;
a lateral subsystem for moving said patient positioning surface in a lateral direction;
a tilt subsystem for tilting said patient positioning surface;
a rotation subsystem for rotating said patient positioning surface; and
a control subsystem for controlling operation of said patient positioning system.

[c2] The system of claim 1, wherein said control subsystem performs iso-center tracking to maintain a region of interest of said patient in an image area during tilt.

[c3] The system of claim 1, wherein said lift subsystem adjusts elevation of said patient positioning surface using a two-stage synchronized telescopic lift system.

[c4] The system of claim 1, wherein said longitudinal subsystem moves said patient positioning surface in a longitudinal direction using a two-stage synchronized telescopic longitudinal system.

[c5] The system of claim 1, wherein said longitudinal subsystem and said lateral subsystem allow manual movement of said patient positioning surface in at least one of a lateral direction and a longitudinal direction.

[c6] The system of claim 1, further comprising a base for securing said patient positioning system, said based affixed to a floor.

[c7] The system of claim 1, further comprising patient restraints for securing said patient to said patient positioning surface.

[c8] The system of claim 1, further comprising:
a power-on brake for braking when a voltage is supplied to said power-on

brake; and

a power-off brake for braking when a voltage is removed from said power-off brake.

[c9] The system of claim 1, further comprising at least one encoder for determining the position of said patient positioning surface.

[c10] The system of claim 9, wherein said at least one encoder allows said patient positioning surface to return to a recorded position.

[c11] A method for positioning a patient for medical applications, said method comprising:

vertically positioning a patient positioning surface to a desired height to allow a patient to be loaded onto the patient positioning surface;

rotating the patient positioning surface to a position to allow a patient to be loaded onto the patient positioning surface;

loading a patient on the patient positioning surface;

positioning the patient for a medical procedure, said positioning step comprising at least one of rotating, lifting, lateral motion, longitudinal motion, and longitudinal tilting of the patient positioning surface; and

maintaining a region of interest of the patient during movement of the patient positioning surface.

[c12] The method of claim 11, further comprising unloading the patient from the patient positioning surface.

[c13] The method of claim 11, further comprising returning the patient positioning surface to a horizontal starting position for emergency situations.

[c14] The method of claim 11, further comprising securing the patient to the patient positioning surface.

[c15] The method of claim 11, further comprising locking the patient positioning surface during the medical procedure.

[c16] The method of claim 11, further comprising manually moving the patient positioning surface in at least one of the lateral and longitudinal directions.

[c17] A grouted tilting patient positioning system for vascular applications, said system comprising:
a base for securing said patient positioning system, said based affixed to a floor;
a patient positioning surface for supporting a patient;
a telescopic lift subsystem for adjusting elevation of said patient positioning surface;
a telescopic longitudinal subsystem for moving said patient positioning surface in a longitudinal direction;
a lateral subsystem for moving said patient positioning surface in a lateral direction;
a tilt subsystem for tilting said patient positioning surface; and
a rotation subsystem for rotating said patient positioning surface.

[c18] The system of claim 17, further comprising patient restraints for securing said patient to said patient positioning surface.

[c19] The system of claim 17, further comprising:
a power-on brake for braking when a voltage is supplied to said power-on brake; and
a power-off brake for braking when a voltage is removed from said power-off brake.

[c20] The system of claim 17, further comprising at least one encoder for determining the position of said patient positioning surface.

[c21] The system of claim 20, wherein said at least one encoder allows said patient positioning surface to return to a recorded position.

[c22] The system of claim 17, further comprising a control subsystem for controlling operation of said patient positioning system.

[c23] The system of claim 22, wherein said control subsystem performs iso-center tracking to maintain a region of interest of said patient in an image area during tilt.

[c24] The system of claim 22, wherein said control subsystem avoids collision with at least one of the ground and a predetermined object by continuously monitoring coordinates of all axes of motion, calculating a clearance from said at least one of said ground and said predetermined object, and stopping motion of said patient positioning surface if said clearance is less than or equal to a specified safe limit.

[c25] A patient positioning system, said system, comprising:
a table for positioning a patient, said table capable of rotation, lift, and longitudinal motions, said table capable of longitudinal tilt, wherein a region of interest of said patient is maintained in an image area during tilt;
a base attaching said table to a floor; and
a user interface for controlling movement of said table.